Quenching-type sensing

$$I_0/I = K_{SV}[C]+1$$

Linear Stern-Volmer (S-V) equation.
Mainly applied for low-concentration range fittings.

$$I_0/I = a\,\mathrm{e}^{k[C]}+b$$

Nonlinear S-V equation.
Mainly applied for higher-concentration range fittings.

$$\ln(I_0/I) \propto C_1+C_2+C_1C_2$$

From nonlinear S-V equation.
Applied for two-component mixture.

$$\ln(I_0/I) \propto C_1+C_2+C_3+C_1^2+C_2^2+C_3^2+C_1C_2+C_1C_3+C_2C_3$$

From nonlinear S-V equation.
Applied for three-component mixture.

Enhancement-type sensing

$$I_0/(I-I_0) = K_{BH}/[C]+b$$

Linear Benesi-Hildebrand (B-H) equation.
Applied for the 1:1 combination of the sensor and the analyte.

$$I_0/(I-I_0) = K_{BH}/([C])^{n}+b$$

Nonlinear B-H equation.
Applied for the 1:n combination of the sensor and the analyte.